Limiting Reactant

Limiting reactant: is the reactant that will not allow the reaction to occur unless there is enough of it to carry out the reaction.

Example: Oxygen is required when ever something is burned (this is why fires are often smothered when being put out).

When there is no oxygen available the burning no longer occurs. This is why oxygen is usually the limiting reactant when anything is burned.

\*\*Grilled Cheese analogy:

If you have 4 pieces of bread and 1 slice of cheese, how many sandwiches can you make?

\*\*Either of the reactants can be the limiting reactant.

It depends on two things:

1. How much of each reactants that you have.
2. The chemical equation (tells you how the reaction should happen).

Calculating Limiting reactant:

Mg + 2 HCl 🡪 H2 + MgCl2

\*\*Be sure that your coefficients are the lowest possible ratio.

Example: If .5 g of Mg (s) reacted with 10 ml of a 3 M (molar) HCl, what is the limiting reactant?

1. First, convert both quantities to moles.

2.) Use the coefficients in the chemical equation to divide the two quantities by. The answer that is the lowest number is the limiting reactant.